



NIMBioS

National Institute for Mathematical
and Biological Synthesis



NIMBioS Interdisciplinary Seminar

Dr. Ryan Martin
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3:30 p.m.* , Tuesday, March 19, 2013

***Hallam Auditorium, Room 206
Claxton Education Building, 1122 Volunteer Blvd.***

“Ecological causes of phenotypic selection and divergence”

The concept of natural selection provides a powerful explanation for both the fit between organisms and their environment and for the origins of biological diversity. However, while natural selection describes the process that leads to adaptive evolution, it is not the cause. The causes (or “agents”) of selection are those environmental conditions and ecological interactions that produce differential fitness between individuals. Agents of selection are often unidentified, and knowledge of their relative importance, how they interact, and if they differ in the form or magnitude of selection and evolution they cause is lacking. In this talk, I present several approaches for addressing this issue. First, I describe how resource competition causes disruptive selection favoring alternative resource specialist morphs in spadefoot toad tadpoles (*Spea multiplicata*), and how the strength of selection is spatially variable. Next, I describe how variation between populations in multiple, interacting environmental parameters causes evolutionary divergence in a complex trait, male coloration, in the Bahamas mosquitofish (*Gambusia hubbsi*). Finally, to explore patterns of natural selection and their causes across a broad range of taxa, I present preliminary results from a synthetic analysis of experimental studies manipulating ecological and environmental parameters to explore their effects on fitness.

****Join us for refreshments at 3 p.m. *in the 1st floor visitor breakroom.***

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